

Russian Campaign

Moscow's Bid to Close Its Technology Gap Will Test Gorbachev

Plan Entails Buying Abroad,
Crash Program at Home;
Losing Control of Data
A Role for Computer Games?

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VIENNA, Austria — The computer's birth was the answer to Communist dreams: at last, a giant machine at party headquarters that could refine and guide Soviet central planners' commands.

Then the nightmares began. Entrepreneurs with bold new ideas, a suspect breed in Moscow, became the indispensable fonts of future technologies. Desktop computers replaced mainframe machines, raising questions about how the Soviets could continue to control information with so many potential printing presses around. For a long time, Soviet leaders wondered what to do, and in their wondering fell further behind. The military superpower was becoming a technological also-ran, and that frightened both army and industrial generals.

Now, under their new leader, Mikhail Gorbachev, the Soviets have conceded their inferiority and are combining a novel Western buying strategy with a crash internal development and educational program to try to close the gap.

A Tough Race

"They have awakened to the fact that they have a major challenge on their hands," says Loren Graham of the Massachusetts Institute of Technology. "It is the toughest race they have been in for a long time. The problem is that the terms of competition are against them. They want to have the economic efficiency of the computer without losing control of information."

How the Soviets respond will be one of the most important tests of Moscow's mettle under new leadership. Perhaps Mr. Gorbachev can cut down on alcoholism through discipline and price policy, but can he animate a lethargic system to produce new technologies? He argues that society needs more information, but how much more? Can the Soviets use lucrative contracts to woo Western Europe or Japan

away from U.S.-inspired trade restrictions, or can they revive detente enough to reduce Washington's strict controls?

One prong of the new Soviet campaign is seeking better access to Western technology. By offering a host of rich projects for its 1986-1990 five-year plan, Moscow is encouraging Western European companies to cheat on technology controls, lobby their governments to change them or, where possible, substitute less strictly controlled Japanese and West European licenses for American components and licenses.

Central Committee Advice

A trade group within the Communist Party's central committee recently advised Soviet trade organizations to reduce business with companies that too strictly abide by Western technology restrictions, says Paul Zieber of the Institute for Eastern Markets Research in Hamburg. He says that this isn't an edict and probably won't affect large companies but that it is a general suggestion to avoid such companies "where it is reasonable."

The Soviets are generally skeptical about relying on U.S. companies. Nevertheless, the U.S. and the Soviet Union recently agreed to make it easier to trade between the two countries, and the Politburo has called for a revival of detente. In addition, a U.S. Jewish leader says he was recently contacted by a Soviet diplomat for a meeting about "reducing tension." The Soviets believe Jewish-American unhappiness with greatly reduced Jewish emigration is a major impediment to better relations.

Another part of the Soviet technology campaign is ensuring that contracted Western deliveries won't be interrupted. The Soviets want to avoid another embargo like the one that followed their invasion of Afghanistan. Hence, they increasingly demand that contracts with Western companies include provisions for heavy fines for nonfulfillment of deliveries. During recent U.S.-Soviet trade talks, the Soviets expressly said they wanted guarantees that contracts signed by U.S. companies would be honored.

Moscow also appears to be offering the inducement of more turnkey projects. Such projects—in which the contractor assumes responsibility for all phases of the job—would be less likely to be cut off by Western companies, could provide the Soviets with their own manufacturing capability and would help Moscow overcome local inefficiency that has caused millions of dollars of Western equipment to be wasted.

Eroded Capability

The third focus of the Soviet campaign is promoting internal technology progress. Increasing numbers of Soviet experts are calling for fewer Western imports. They advocate better education and the establishment of more scientific centers at regional levels to more speedily implement Soviet research findings. According to Philip Hanson, a Soviet technology expert

at England's University of Birmingham, many of these Russians believe that importing Western technology has led to a decline in domestic research and development capabilities.

Radio Moscow's North American service recently said that although 60% of world steel output is made by the continuous casting process, a method developed in the Soviet Union, the Soviets themselves haven't made full use of the technique because of the improper application of inventions.

Moscow also wants to channel more than one million personal computers into education and to retrain "the vast army of teachers and organizers," Pravda said recently. One of the Politburo's first acts under Mr. Gorbachev was to order high schools to start training students in the use of computers beginning next fall.

"We must build a program somewhat like the one we developed to eliminate illiteracy after the October Revolution," A.P. Alexandrov, the president of the Soviet Academy of Sciences, said recently. It is "a program that is probably no less important in today's world."

But the Soviets have much to undo. Statistics that indicate technological progress have declined in recent years, according to Ron Amann, the director of the Center for Russian and East European Studies at the University of Birmingham. The number of new patents registered has been falling, and a recent article in Pravda says that only a third of the new patents are ever used in the economy at all. Another important indicator, the number of prototypes of new machines being put into operation, has been declining for five years at an average annual rate of 1.5% to 2%.

The Soviets face practical barriers as well. The quality of their telephone lines is generally too poor for computer networking, and their centralized economy isn't organized to provide the spare parts or services that any new computer customer needs.

The country also lost 50,000 programmers and data processors between 1972 and 1982, a brain drain caused by emigration to the U.S. and Israel, according to Mr. Hanson, who talked to 20 Soviet programmers now living in the West.

Moreover, the information that can be fed into computers is substandard. Health planners don't have sufficient information about infant mortality. Social planners don't know enough about average life expectancy. And economists complain that even the country's grain output is a state secret.

At the core of the problem is the system itself. The Soviets have indicated they will stop short of selling computers to the public, the only way Western experts believe they can create the intellectual ferment that would prevent the technological gap from increasing. Official publications have said that the Soviets' personal computer, the Agat, is intended for rental instead of

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sale, a practice that would ensure strict control over who has the machines.

"Every single word processor is a potential printing press," says Mr. Graham of MIT. "The day they accept computers into society is the day they are going to give up censorship."

Soviet central authorities even debate the minutiae of the technological age, such as whether computer games have a role under communism. Academician A. Yershov warned in Pravda that the country must overcome "excessive fascination with games." But Valentin Mikhailovich Ponomaryov, the director of the Leningrad Computer Center, bubbled in a Soviet interview that "games are not the privilege of children alone" and that they "can take away the fatigue one gets from hard work."

Soviet Hotel Rooms

Until the Soviets can sort out their approach at home, their priority is making purchases abroad. They have already made their buying intentions so clear that 26 Western computer and electronics firms have opened offices or are operating out of hotel rooms in the Soviet Union, and twice as many are believed to be waiting. They are partially responding to the easing of restrictions by Cocom, a 15-nation group, including Japan, that monitors members' exports to Communist countries. Since the change, members are allowed to sell the Communists smaller capacity personal computers.

One of the tantalizing carrots being dangled by Moscow is construction of an advanced microcomputer factory in the Soviet Union. During Mr. Gorbachev's visit to Britain in mid-December, Ivan Velikhov, the director of a Soviet electronics company, met with representatives of ICL and other British computer companies.

The U.S. Export Administration Act has prohibited the sale of computer factories to the Soviet Union since 1981, and Cocom regulations would prohibit the turnkey project without unanimous approval of all members. A West European diplomat believes the Soviets know this but approached several Western companies anyway, hoping to divide the West over controls if they couldn't get the plant.

During his visit to England, Mr. Gorbachev warned British businessmen that Washington is their common enemy. "The

policy of embargoes and sanctions to which some people resort from time to time is, frankly, aimed not only against the socialist countries," he said. "It is also intended to weaken competitors, including some in Western Europe."

West European businessmen's complaints are increasing with each Soviet offer of contracts they can't fulfill. They say that they suffer in order to protect technologies that are available through non-Cocom countries, through unscrupulous companies or through countries that enforce the restrictions less strictly, such as Italy and Belgium.

"We are complying to an extent that really hurts," says Heinrich Vogel, the director of Cologne's Institute for Eastern and International Studies, which is sponsored by the West German government. "Many people are increasingly unhappy and fear that the U.S. is drifting into technology imperialism."

A West German executive says the Soviets took a new approach recently when he said he couldn't sell the high-tech energy-recovery gear Moscow wanted. "It is not interesting to me *why* you cannot sell. It is only of interest *that* you cannot sell," the businessman paraphrases a Soviet official as replying. The Soviet said he was confident he could find the equipment elsewhere, mentioned competing companies in Finland and Japan and suggested that the West German company's failure to deliver might cause it to lose less sensitive Soviet business.

Worrisome Statistics

West Germans, the Soviets' largest Western trade partner, are particularly worried by statistics that show their exports to the Soviet Union fell by nearly 10% last year. At the same time, the Soviets increased trade with countries that don't have Cocom technology restraints. Austria's exports to the Soviet Union swelled by some 30%.

Cocom technology-sale restrictions aren't the only factor in the trade decline, but West German officials fear the Soviets are increasingly picking the least risky supplier possible.

Mr. Vogel believes Soviet efforts to improve trade relations with Washington are aimed less at significantly increasing technology trade with the U.S. and more at removing U.S. barriers to the trade that Europe does with the Soviets.

"The lessons of the last 50 years," he says, "have led the Soviet Union to doubt how reliable a partner the U.S. will be even in the best political circumstances."